

A day in the life of a surveyor aboard a survey ship

„Chirp“ is, or to put it in better terms, should be, the first thing an NSW representative hears on a completely normal morning aboard a survey ship during a submarine cable survey. At this moment, we are in the Mediterranean, or to be more precise, in the Aegean Sea, or to be even more precise, between the small island of Milos, about 150 km south of Athens, and Crete, the last landing point of our new submarine cable project.

Our job sounds simple but is rather demanding. We are to find and survey a cable route between Athens, Milos and Crete that can be used to lay the submarine cable produced by NSW. This route must also provide optimal protection against all possible -- meaning caused by humans -- risks such as anchors or trawl net fishing. As long as the „Chirp“ sounds every 0.5 to 1.5 seconds, everything is okay, the survey is proceeding, the equipment is functioning and we are making progress.

After getting up and taking a shower in the stall that, like on all ships, is much too small, my first task is to go to the bridge and check the marine weather forecast. Here on board, we are extremely dependent on a calm sea and, of course, on the wind. From wind speeds of about 25-30 knots up and waves higher than 1.5 m that accompany such winds, we cannot even think of working with the sensitive equipment. When this happens, we need to bring all the equipment on board as quickly as possible. Sometimes, we are using sonar equipment that is towed along the bottom up to 3 km behind the ship. Then we have to look for a protective bay, harbor or even just the lee side of an island. Sometimes, this is easier said than done. However, we are still hearing the „Chirp“ throughout the ship, the weather is calm after almost a week of storm winds up to 70 knots and waves up to 3.5 m in height, and the sea is flat.

What really is this „Chirp?“

The „Chirp“ is an acoustic signal consisting of a modulated frequency range between 1.5 and 11.5 kHz. This means the signal starts with a low note and moves to higher and higher tones. The „Chirp“ signal itself only lasts 32 milliseconds. It repeats in intervals between 0.5 and 1.5 seconds, depending on the depth of the water. The deeper the water below us, the longer the interval between the individual signals. This is so the signal reflected by the sea bottom can reach the ship again before the next „Chirp“ is transmitted. The „Chirp“ itself is radiated by a grid of transmitters, known as transducers, located below the hull of the ship. It is reflected by the seabed, among other objects, and recorded by a row of receivers, also installed below the hull of the ship. In this process, the depth of the seabed beneath the ship is calculated from the delay. This is not just at a single point, but rather along a line.

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Putting these lines together over time yields a completely surveyed corridor on the sea floor that, depending on the water depth, can be up to 1400 m wide. Actually, the entire measuring system is based on simple physics, but you have to know what you are doing! „Chirp,“ „Chirp,“ „Chirp,“...

After getting the weather report, I go next to the instrumentation room to see whether the task plan created the previous evening for the night shift has been completed and what our current position is. As is always the case, my impatience grows and the kilometers covered by the night shift are never enough. It takes quite a while to adjust to the slow motion of the ship.

To achieve good data quality, especially with water depths exceeding 1000 m, the speed of the ship is limited to a maximum of 2.5 knots or about 5 km/h. As a result, the distance between each of the two landing points in this project, which are really „only“ 150 km apart, grows into a 30-hour trip. In this case, patience really is a virtue and it takes quite a while to adjust to this, especially when the weather has thrown my schedule out the window for a few days but the upcoming project deadlines keep getting closer and closer. At least the „Chirp“ appears to be hurrying. If you listen closely, the signal gives the impression of speeding up continuously. Unfortunately, this is only due to the modulating frequencies.

The rest of the day is routine. The results from the night shift are evaluated, changes in the route arising from these results are discussed, meals are served at fixed times, maps are drawn and reports written.

In the evening, while falling asleep, the penetrating „Chirp“ amazingly provides me with a calming feeling of consistency and, I hope, it will be the first thing I hear the next morning. This is because as long as I can hear the „Chirp“ everything is running smoothly and I will soon be home again in Nordenham ...

On board the R/V UNIVERSITATIS, October 2006 (Sz)